

EXHIBIT 12

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**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

IN RE FLINT WATER LITIGATION

Case No. 5:16-cv-10444-JEL-MKM
Hon. Judith E. Levy

This Document Relates To:

Gaddy et al. v. Flint et al.

Meeks et al. v. Flint et al.

Case No. 5:17-cv-11166-JEL-MKM

Case No. 5:17-cv-11165-JEL-MKM

**REPLY IN SUPPORT OF DEFENDANTS VEOLIA NORTH AMERICA,
LLC, VEOLIA NORTH AMERICA, INC., AND VEOLIA WATER NORTH
AMERICA OPERATING SERVICES, LLC'S MOTION TO EXCLUDE
THE TESTIMONY AND REPORT OF ROBERT A. MICHAELS, PH.D., CEP**

CONTROLLING OR MOST APPROPRIATE AUTHORITIES

Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579 (1993)

Greenwell v. Boatwright, 184 F.3d 492 (6th Cir. 1999)

Lowery v. Enbridge Energy Ltd. P'ship, 500 Mich. 1034 (2017)

Nelson v. Tenn. Gas Pipeline Co., 243 F.3d 244 (6th Cir. 2001)

Powell-Murphy v. Revitalizing Auto Cmtys. Env'tl. Response Tr.,
333 Mich. App. 234 (2020)

Tamraz v. Lincoln Elec. Co., 620 F.3d 665 (6th Cir. 2010)

Fed. R. Evid. 401

Fed. R. Evid. 403

Fed. R. Evid. 702

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INTRODUCTION

Dr. Robert A. Michaels is a toxicologist whom Plaintiffs offer as an expert on exposure and general causation. He opines that each Plaintiff was exposed to lead in Flint drinking water, and that each Plaintiff's exposure may have caused or exacerbated his or her claimed health conditions. Plaintiffs have not carried their burden of establishing that those opinions are reliable or would be helpful to a jury in resolving Plaintiffs' claims against VNA.

Dr. Michaels's opinion that each Plaintiff was exposed to lead in Flint tap water is unreliable because he did not do the work necessary to evaluate any Plaintiff's actual exposure. He ignores all available Plaintiff-specific evidence that could have informed a reliable exposure opinion—such as evidence that three of the four Plaintiffs stopped using unfiltered Flint tap water in 2014; that no Plaintiff had a blood lead level above 1.3 µg/dL; and that the service lines of all four Plaintiffs' homes were made of copper, not lead. Further, Dr. Michaels admits that all people have some exposure to lead, and he did not attempt to quantify any Plaintiff's exposure to extra lead from tap water. He also did not attempt to show that any Plaintiff was exposed to lead in the water *after* the water switch, much less that any Plaintiff was exposed to additional amounts of lead in the water after VNA began its engagement in Flint.

Plaintiffs assert that Dr. Michaels was allowed to rely on water lead and blood lead studies of the Flint population as a whole. But in order to hold VNA liable, each Plaintiff has to prove that he or she was exposed to lead and injured as a result. Plaintiffs simply cannot make that showing based on statistics about the population as a whole; they must show Plaintiff-specific evidence of exposure.

Because Plaintiffs' blood lead tests do not support his bottom line, Dr. Michaels tries to diminish their significance. He says that there is a "possibility" that Plaintiffs' blood lead levels—which were **non-detectable** when tested using the finger-prick method—could have been **detectable** if a different method had been used. But Dr. Michaels admits that there is no way of knowing whether that is true.

Dr. Michaels also relies on Dr. Specht's bone lead measurements. But Dr. Michaels is not an expert in bone lead scans and had never used them before. He is not qualified to offer the opinion that the bone lead scans demonstrate **"persistent exposure"** to lead from Flint water. In the Sixth Circuit, like elsewhere, district courts have a gatekeeping duty to restrict expert testimony to the expert's area of expertise.

Moreover, Dr. Specht's measurements have their own problems. Most significantly, Dr. Specht admits that no reliable benchmarks exist for identifying elevated bone lead levels in children and that the most pXRF can do is identify a person's cumulative lifetime exposure to lead, not any particular source of lead

exposure. Plaintiffs do not dispute that. So even if Dr. Michaels were qualified to opine on the measurements, the measurements could not lead to his conclusion, because they are not capable of showing bone lead due to the Flint water crisis in general, or to VNA in particular.

Because Dr. Michaels never did the work necessary to estimate Plaintiffs' exposure to lead in Flint water due to VNA, he falls back on his view that "no safe level" of lead exists and that "every exposure" causes injury. But controlling Michigan case law has rejected that view, and instead explained that toxic-tort plaintiffs must establish that the amount of the plaintiff's exposure is sufficient to cause harm. Plaintiffs ignore that binding law. That fundamentally undermines Dr. Michaels's opinion—especially since he himself admits that lead has *not* been proven to be unsafe at any level.

Further, Dr. Michaels's general-causation opinions are not supported by reliable science. Rather than refute VNA's arguments, Plaintiffs simply refer to the 15 pages of citations appended to Dr. Michaels's report. But neither Dr. Michaels nor Plaintiffs identify which authorities actually support his opinion that lead levels that are non-detectable and as low as those recorded in Plaintiffs are capable of causing Plaintiffs' claimed conditions. Studies noting an "association" between low levels of lead and certain conditions cannot support a general-causation opinion; Plaintiffs must prove *causation*.

Finally, Dr. Michaels offers opinions about health effects of lead that Plaintiffs admittedly have not experienced. These are irrelevant and highly prejudicial—a textbook example of the kind of expert testimony that the Supreme Court said is inadmissible under *Daubert*.

ARGUMENT

I. Dr. Michaels’s Opinions Relating To Plaintiffs’ Lead Exposure Should Be Excluded

To make their case against VNA, Plaintiffs must prove that (1) each Plaintiff was exposed to additional lead because of the water-source switch; (2) at least some of that exposure occurred after VNA began working in Flint in February 2015; (3) the amount of additional lead to which each Plaintiff was exposed after February 2015 was sufficient to cause or exacerbate each Plaintiff’s claimed injuries; and (4) the additional lead in the water after February 2015 resulted from VNA’s professional negligence. Plaintiffs seek to use Dr. Michaels’s opinions to satisfy the first three requirements, but his opinions are too speculative and unfounded to be admitted.

A. Dr. Michaels’s Opinion That Plaintiffs Were Exposed To Additional Lead At Home And At School Lacks A Reliable Factual Basis

1. Dr. Michaels Failed To Rigorously Analyze Plaintiffs’ Lead Exposure

As VNA explained in its opening brief, Dr. Michaels did not rigorously analyze each Plaintiff’s lead exposure, and so his opinion is unreliable. Br. in Supp.

of VNA Mot. to Exclude Michaels (VNA Br.) 9-18, ECF No. 342, PageID.20582-20591.

a. Dr. Michaels Made No Effort To Quantify Plaintiffs' Exposure To Lead In Drinking Water

Dr. Michaels did not quantify the amount of lead that Plaintiffs were exposed to from drinking water, let alone the amount of lead exposure after February 2015 (when VNA began its engagement in Flint). This is important because, as Dr. Michaels admits, lead is ubiquitous and everyone is exposed to lead from a variety of sources. Ex. 3, Michaels Dep. (Dep.) 70:16-20, 142:7-143:7, 153:7-9; 185:22-186:1, 187:7-13, 192:12-15. Plaintiffs' other causation experts agree on this point. *See* Ex. 38, Suppl. Graziano Dep. 68:12-69:4 (agreeing that, before the water switch, every child in Flint had some lead in his or her body); Ex. 39, Bithoney Dep. 37:3-9, 207:10-12 (explaining that people are exposed to lead from a variety of "fairly typical" sources such as soil, paint, dust, and medicines and that lead-contaminated water typically accounts for just 20% of children's overall exposures). As Dr. Michaels states in his report, "health conditions that can be caused by [lead] in drinking water in a particular patient might be caused instead by [lead] from other sources." Ex. 2, Michaels Report (Report) 106. Without an understanding of the amount of lead Plaintiffs were exposed to from drinking water as a result of the water crisis, there is no foundation for Dr. Michaels's opinion that exposure to lead in

drinking water—as opposed to lead from other sources—was capable of causing Plaintiffs’ claimed health effects.

Dr. Michaels admits that he did not quantify the amount of lead that Plaintiffs were exposed to from drinking water, although he had hoped to do so. Dep. 157:3-10, 161:19-162:16. Plaintiffs assert that VNA provided incomplete and misleading cites to Dr. Michaels’s deposition testimony on this issue. Pls. Response to VNA Mot. to Exclude Michaels (Response) 18-19, ECF No. 370, Page.ID.23830-23831. The full passage from the transcript, which bears out VNA’s characterization, follows:

Q. Similarly, with respect to the four bellwethers, you have not done any calculations or analyses to determine in terms of quantity the additional amount of lead that they are exposed to because of the water switchover, correct? These four bellwethers, I mean.

A. Have I quantified it? No.

Q. Because you used the term “qualitatively,” I wanted to make sure that I understood what you meant.

Q. In terms of the quantity, or that is, the amount that each of these children were exposed to during the period of time of the water switchover, you—just to be clear, you haven’t attempted to quantify that, right?

A. Well, I certainly haven’t quantified it. I probably started off hoping that I could, but I wasn’t able to.

Dep. 156:17-157:10. Thus, Dr. Michaels stated definitively that he did not quantify Plaintiffs’ exposure to lead as a result of the Flint water crisis.

Plaintiffs' response to this point is that the data needed for a quantitative analysis of Plaintiffs' exposures was not available and that, in the absence of that data, Dr. Michaels is permitted to make reasonable inferences derived from the evidence. Response 20-21, PageID.23832-23833. Both the premise and the conclusion are wrong.

First, the needed data are available. They include paint, dust, and soil samples from three of the Plaintiffs' homes. Dep. 69:1-14; Ex. 4, Finley Report 38-39 (E.S.); *id.* at 55 (R.V.); *id.* at 63-64 (D.W.). Indeed, VNA's expert Dr. Brent Finley gathered quantitative data for each Plaintiff and input it into an EPA model to estimate the relative contribution of lead from drinking water to Plaintiffs' overall lead exposures. Ex. 4, Finley Report 30-31, 39 (E.S.); *id.* at 48-49 (A.T.); *id.* at 55-56 (R.V.); *id.* at 64 (D.W.). Dr. Michaels is familiar with that model and, in other cases, he has used similar mathematical calculations to determine the extent to which lead from various sources contributes to blood lead levels. Dep. 188:19-23, 190:4-12. But he did not do so here. *Id.* at 190:13-15; Ex. 40, Suppl. Michaels Dep. 73:5-9.

Second, while experts are permitted to make inferences, *Daubert* requires "that those inferences be derived from the facts of the case at hand." *Jahn v. Equine Servs., PSC*, 233 F.3d 382, 390 (6th Cir. 2000). Dr. Michaels's inference that each Plaintiff was "evidently exposed to lead in water at home" is contradicted by the

facts that none of the Plaintiffs lived in homes with lead service lines; that none of the Plaintiffs had a blood lead level above 1.3 $\mu\text{g}/\text{dL}$; and that three of the Plaintiffs did not drink the water after VNA began its engagement in Flint. Therefore, his inference is not permissible. *See Greenwell v. Boatwright*, 184 F.3d 492, 497 (6th Cir. 1999) (“Expert testimony . . . is inadmissible when the facts upon which the expert bases his testimony contradict the evidence.”); *see also DeMerrell v. City of Cheboygan*, 206 F. App’x 418, 427 (6th Cir. 2006) (holding that the district court did not err in failing to consider expert report that “consists entirely of premises that contradict the uncontroverted facts”); *Coffey v. Dowley Mfg., Inc.*, 89 F. App’x 927, 932 (6th Cir. 2003) (affirming district court’s exclusion of expert testimony in part because it was based on “guesstimations” and data that may not have reflected conditions in the real world).

b. Dr. Michaels Did Not Assess Plaintiffs’ Other Lead Exposures

As VNA pointed out, Dr. Michaels did not assess Plaintiffs’ other lead exposures or try to compare Plaintiffs’ exposure to lead in drinking water to their exposure to lead from other sources. VNA Br. 10-11, PageID.20583-20584. He instead presumes that all lead exposures were attributable to Flint water and to

VNA's alleged negligence in particular. But Dr. Michaels has no valid basis to assume that.

Dr. Michaels did not assess Plaintiffs' other lead exposures. Plaintiffs do not dispute that; instead, they cite testimony in which Dr. Michaels admits that he did not assess Plaintiffs' other exposures to lead. Response 19, PageID.23831. Dr. Michaels states: "I was not doing an analysis on, you know, breaking down the various sources. As I've said before and acknowledged before, some of those lead levels appeared even before the use of Flint River. . . . I know for sure that they have other exposures, even though I haven't analyzed each one of them." Dep. 70:13-71:4.

Plaintiffs assert that Dr. Michaels was not required to identify the exact source of exposure or rule out all possible causes of their alleged injuries. Response 20, PageID.23832. But Michigan law requires Plaintiffs to produce evidence that "excludes other reasonably relevant potential causes of [the] plaintiff's symptoms." *Powell-Murphy v. Revitalizing Auto Comtys. Envtl. Response Trust*, 333 Mich. App. 234, 250 (2020) (internal quotation marks omitted). Plaintiffs *are* required to establish that lead in drinking water related to the Flint water crisis and attributable to VNA injured them. How else could they hold VNA liable for their injuries? Dr. Michaels simply cannot provide the needed link to the water crisis and VNA. As Dr. Michaels himself testifies, "[y]ou don't know which lead molecule was

associated with the river and which one was associated with a can of peas, you know, five years ago.” Dep. 186:2-6.

c. Dr. Michaels Did Not Have A Sufficient Factual Basis For Concluding That Plaintiffs Experienced Any Extra Lead Exposure From Drinking Water

Dr. Michaels did nothing to actually evaluate each Plaintiff’s exposure to lead in unfiltered tap water. Instead, he simply assumes that exposure occurred every day that each Plaintiff lived and attended school in Flint during the time when the City was obtaining its water from the Flint River. Report 47 (E.S); *id.* at 53 (A.T.); *id.* at 58-59 (R.V.); *id.* at 63 (D.W.). Dr. Michaels identifies the number of days each Plaintiff resided and attended school in Flint and opines that each Plaintiff was exposed over the sum of those days. *Id.*

Dr. Michaels’s opinion is based on two assumptions: first, that each Plaintiff consumed unfiltered tap water during the entire time the City was sourcing its water from the Flint River; and second, that during that period each Plaintiff was consuming water that contained lead. *See, e.g.*, Report 47 (E.S.). Neither assumption holds up. The facts show that three of the Plaintiffs did not drink Flint River water after 2014. VNA Br. 12-14, PageID.20585-20587. And none of the Plaintiffs lived in homes with lead service lines. *Id.* at 14-15, PageID.20587-20588. Plaintiffs do not dispute—and Dr. Michaels admits—that lead service lines were the principal source of elevated water lead levels in Flint and that a substantial

proportion of service lines in Flint did not contain lead. Report 8 & n.7. Yet Dr. Michaels fails to account for publicly available data showing that the service lines in Plaintiffs' homes were made of copper, not lead. VNA Br. 14-15, PageID.20587-20588. These facts completely undermine Dr. Michaels's opinion that each Plaintiff was exposed to lead through drinking water at home when the City was obtaining its water from the Flint River.¹

Plaintiffs assert that VNA's challenge to Dr. Michaels's exposure opinion is based on a competing version of the facts, which goes to weight rather than admissibility. That is not correct. Although the Sixth Circuit "will generally permit testimony based on allegedly erroneous facts when there is some support for those facts in the record," "a significant error" in an expert's understanding of the facts can go to "the admissibility, as opposed to the weight, of the evidence." *In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 530 (6th Cir. 2008). In particular, "[e]xpert

¹ In his report, Dr. Michaels speculates that (1) Plaintiffs may have had lead service lines during the time when the City was sourcing its water from the Flint River, but that those service lines may have been replaced before the FAST Start Program; (2) lead could have been released from interior plumbing fixtures at Plaintiffs' homes; and (3) lead could have been released into residential drinking water from sources upstream, such as water mains and the water plant. VNA Br. 15-16, PageID.20588-20589. Dr. Michaels lacks any factual basis for this speculation, and so it is inadmissible. *See Tamraz v. Lincoln Elec. Co.*, 620 F.3d 665, 670 (6th Cir. 2010) (stating that Rule 702 requires "more than subjective belief or unsupported speculation") (quoting *Daubert v. Merrill Dow Pharms., Inc.*, 509 U.S. 579, 590 (1993)). Plaintiffs offer no response in their brief.

testimony . . . is inadmissible when the facts upon which the expert bases his testimony contradict the evidence.” *Greenwell*, 184 F.3d at 497. That is precisely the problem with Dr. Michaels’s exposure opinion: He disregards the facts undermining his conclusion.

Dr. Michaels speculates that three of the four Plaintiffs were exposed to lead in water at school. VNA Br. 16-17, PageID.20589-20590.² He cites limited data from water sampling at schools that these three Plaintiffs attended, but he cites no facts to show that the three Plaintiffs drank water from faucets at school, let alone that the water in those faucets contained lead. *Id.* In fact, in testing by the Michigan Department of Environmental Quality (MDEQ), the vast majority of water samples in these Plaintiffs’ schools did not exceed the action level for lead of 15 ppb, and some tested below the 1.0 ppb detection level.³ Dr. Michaels also has no information about whether the schools were even allowing students to drink unfiltered tap water

² Dr. Michaels accepts that R.V. was not exposed to lead-contaminated water at school because **her** school was outside Flint. Report 60.

³ At the school A.T. attended, the average concentration of lead in fixtures sampled was 9.5 ppb, 14% of samples were below the limit of detection of 1 ppb, and 90% of samples were below the action level of 15 ppb. Ex. 4, Finley Report 45. At the school D.W. attended, MDEQ samples from fixtures had an estimated mean lead concentration of 13.7 ppb, 7.6% of samples were below the limit of detection of 1 ppb, and 85% of samples were below the action level of 15 ppb. *Id.* at 61. **E.S. did not begin kindergarten until 2016**, by which time the school **he** attended had installed filters on the drinking fountains and retesting by MDEQ showed that all samples were below the detection limit of 1 ppb. *Id.* at 35, 95.

at school as of February 2015, when VNA began its engagement in Flint. *Id.* at 17, PageID.20590. Dr. Michaels therefore lacks the factual basis necessary to support his assumption about three Plaintiffs drinking water at school.

In its opening brief, VNA relied on *Cameron v. Peach County*, No. 02-CV-41-1, 2004 WL 5520003 (M.D. Ga. June 28, 2004), because the court excluded the opinion of an expert toxicologist under circumstances like those here. The expert in that case sought to testify that the plaintiffs' exposures to contaminated air and water presented an increased risk of adverse health effects. *Id.* at *11. The court rejected that testimony because the expert had no basis for his estimates of how much water the plaintiffs drank or air they breathed:

In arriving at [his opinion], Dr. Cavender assumes that well-users drank two liters of contaminated well-water every day for *sixteen* years and breathed twenty liters of polluted air every day for over *twenty-five* years. . . . Dr. Cavender's opinion is mere conjecture. In fact, he did not inquire as to how long each resident actually lived adjacent to the landfill and merely assumed that the groundwater exceeded [regulatory standards] as far back as 1978. When questioned as to the basis of such an assumption, Dr. Cavender conceded that he made the assumption because [the defendant's] experts "[did not] have any data to show that it was not."

Id. (citation omitted). The court held that Dr. Cavender's opinion was "overly speculative, without any relevant foundation, and therefore inadmissible." *Id.* Dr. Michaels's unfounded assumptions likewise should be excluded.

Plaintiffs do not respond to this holding. They instead cite two other holdings in *Cameron*; neither is responsive to VNA's argument. First, they cite a part of the

Cameron decision in which the court excluded the testimony of a different expert because he was not a toxicologist. Response 26, PageID.23838 (citing *Cameron*, 2004 WL 5520003, at *6-7). VNA did not rely on that aspect of the court’s decision. Second, Plaintiffs cite a part of the *Cameron* decision in which the court excluded a different opinion by Dr. Cavender (that air contamination at the plaintiffs’ properties was harmful) because it lacked a factual basis (no one had tested the air). *Id.* at 26-27, PageID.23838-23839 (citing *Cameron*, 2004 WL 5520003, *10-11). Plaintiffs claim that unlike that opinion, Dr. Michaels’ opinion is based on “datasets” of testing. *Id.* at 27, PageID.23839. But on the critical question of each Plaintiff’s lead exposure, Dr. Michaels has *no* factual basis for his opinion—only speculation. That makes *Cameron* the same as this case, not different.

Dr. Michaels’s methodology also suffers from the same flaws as the expert’s methodology in *Nelson v. Tennessee Gas Pipeline Co.*, 243 F.3d 244 (6th Cir. 2001). In that case, an expert opined that the plaintiffs’ injuries were caused by exposure to PCBs but made no attempt to determine the amount of PCB exposure. *Id.* at 253. The plaintiffs argued that, because PCBs were present in the environment in excess of allowable limits and plaintiffs lived and worked in the area, they must have been exposed at a level that could cause injury. *Id.* at 252-53. The Sixth Circuit disagreed, stating that “[w]ithout any factual basis from which a jury could infer that the plaintiffs were in fact exposed to PCBs from Station 79, the reasoning and

methodology underlying the testimony is not scientifically valid.” *Id.* at 253. The same is true here: Dr. Michaels is relying on lead in the environment generally to try to show that *these Plaintiffs* were exposed, in amounts sufficient to cause their injuries.

Plaintiffs say that Dr. Michaels’s exposure opinion nonetheless is reliable because it is based on his experience. Response 23, PageID.23835. But Dr. Michaels’s toxicology experience does not bear on whether these Plaintiffs drank the water after 2014, whether these Plaintiffs had lead service lines, or whether lead was getting into their water from interior plumbing or water mains. General scientific literature and professional experience cannot answer those questions; they are questions of fact, and the answers either are missing or do not support Dr. Michaels’s opinion. VNA Br. 11-15, PageID.20584-20588.

Plaintiffs’ reliance on *Little Hocking Water Association, Inc. v. E.I. Du Pont De Nemours & Co.*, 90 F. Supp. 3d 746 (S.D. Ohio 2015), and *United States v. Poulsen*, 543 F. Supp. 2d 809 (E.D. Mich. 2008), is misplaced. Neither case involved scientific testimony. In *Little Hocking*, the expert sought to provide experience-based testimony about the rationale behind ordering future financial assurances in environmental cleanup cases and an experience-based opinion on the best means of securing the defendant’s satisfaction of its clean-up obligations. 90 F. Supp. 3d at 754. In *Poulsen*, the court noted that “the expert’s testimony is not based

on any scientific principles, but on his extensive experience investigating crime as an FBI agent.” 543 F. Supp. 2d at 811. Scientific experts like Dr. Michaels, by contrast, must come to their opinions by analyzing the relevant data and applying the scientific method.

2. Dr. Michaels’s Opinions Are Not Supported By The Studies That He Cites, And He Ignores Contrary Studies

Plaintiffs also suggest that two population studies Dr. Michaels cites supply sufficient facts and data for his opinions. Response 24, PageID.23836.⁴ First, Dr. Michaels relies on a paper by Dr. Kelsey J. Pieper to support his assertions that there was “a system-wide problem” with lead in the water and that “the ZIP codes where the four plaintiffs live” were “heavily impacted.” Dep. 310:5-14. Second, he relies on a paper by Dr. Mona Hanna-Attisha for the proposition that there was an increase in elevated blood lead levels (defined as 5 µg/dL or higher) in Flint children that “coincided with exposure to [lead] in municipal drinking water, including homes and schools.” Report 10.

These studies do not establish anything about lead levels in water at the homes of the four Plaintiffs or the blood lead levels of those Plaintiffs. As Dr. Michaels

⁴ “Population . . . studies involve studying the health of populations—both at specific time points and over longer periods of time—to uncover patterns, trends, and outcomes that may be applicable to the general population.” Nat’l Heart, Lung & Blood Inst., *Population and Epidemiology Studies*, <https://www.nhlbi.nih.gov/science/population-and-epidemiology-studies> (last visited Sept. 14, 2021).

concedes, “[t]hese kinds of population averages are less probative” than facts about the individual Plaintiffs such as “where they live and what their lifestyle is.” Dep. 129:4-8. This is especially true because undisputed facts show that none of Plaintiffs’ homes had lead pipes and that three of the Plaintiffs did not drink unfiltered Flint tap water after late 2014. VNA Br. 12-15, PageID.20585-20588.

In addition, Dr. Michaels ignores portions of the population studies that do not support his opinion. The Pieper paper identifies a median water lead level of the sampled homes of 3.5 µg/L, which was significantly lower than the action level of 15 µg/L. Ex. 20, K. Pieper et al., *Evaluating Water Lead Levels During the Flint Water Crisis*, 52 *Envtl. Sci & Tech.* 8124, 8126 (2018), ECF No. 342-21, PageID.20672. And 95% of the Flint children in the Hanna-Attisha paper did not have elevated blood lead levels. Ex. 23, M. Hanna-Attisha et al., *Elevated Blood Lead Levels in Children Associated with the Flint Drinking Water Crisis*, 106 *Am. J. Pub. Health* 283, 284, 286 (2016), ECF No. 342-24, PageID.20700, 20702.

Further, Dr. Michaels ignores directly relevant studies that undermine his opinions. On water lead levels, Dr. Michaels fails to address two papers by Dr. Marc Edwards, a professor at the Virginia Polytechnic Institute and State University, who has taken a prominent role in research surrounding the water crisis. Ex. 21, Roy et al., *Lead Release to Potable Water During the Flint, Michigan Water Crisis as Revealed by Routine Biosolids Monitoring Data*, 160 *Water Rsch.* 475 (2019), ECF

No. 342-22, PageID.20679; Ex. 22, Roy et al., *Efficacy of Corrosion Control and Pipe Replacement in Reducing Citywide Lead Exposure During the Flint, MI Water System Recovery*, 6 *Envtl. Sci.: Water Rsch. & Tech.* 3024 (2020), ECF No. 342-23, PageID.20689. As VNA explained, the Edwards papers show that water lead levels in Flint during the time when the City was sourcing its water from the Flint River were *lower* than in previous periods when the City was still using Detroit water, and that by the end of 2014 lead levels had returned to a level consistent with water lead levels before the switch. VNA Br. 19-20, PageID.20592-20593. Those findings undercut Dr. Michaels's assumptions that each Plaintiff was exposed to lead in water until the water switch-back in October 2015 and that exposure could be related to VNA's work in February 2015. *Id.* at 20, PageID.20593. Dr. Michaels did not even review the Edwards papers. Dep. 168:24-170:11.

On blood lead levels, Dr. Michaels fails to consider two papers by Dr. Hernan Gomez and colleagues, which studied blood lead levels in Flint children before, during, and after the period when Flint was obtaining its water from the Flint River. Ex. 24, H. Gomez et al., *Blood Lead Levels of Children in Flint, Michigan: 2006-2016*, 197 *J. Pediatrics* 158 (2018) (Gomez 2018), ECF No. 342-25, PageID.20707; Ex. 25, H. Gomez et al., *Analysis of Blood Lead Levels of Young Children in Flint, Michigan Before and During the 18-Month Switch to Flint River Water*, 57 *Clinical Toxicology* 790 (2019) (Gomez 2019), ECF No. 342-26, PageID.20715. The first

paper concludes that there was a significant and sustained decrease in mean blood lead levels in children throughout the 2006-2016 period, and that any fluctuation was due to “what is essentially random variation.” Ex. 24, Gomez 2018 at 161, PageID.20711. In the second paper, the authors found that mean blood lead levels across Flint actually *decreased* during the period when the City was sourcing its water from the Flint River. Ex. 25, Gomez 2019 at 792 fig.1, PageID.20719. Dr. Michaels did not review the Gomez papers, even though he agreed that they were relevant to his work in this case. Dep. 144:14-145:14, 146:17-147:5.

When an expert does not engage with relevant studies that contradict the expert’s opinions, the expert’s methodology is unreliable and should be excluded. VNA Br. 22-23, PageID.20595-20596 (collecting cases). That is true here. Plaintiffs do not even attempt to explain why Dr. Michaels ignores these important and relevant studies.

B. Dr. Michaels’s Speculation That Plaintiffs’ Blood Lead Levels Were Higher Than Recorded Is Inadmissible

Each Plaintiff underwent blood lead testing during (or not long after) the period when the City was obtaining its water from the Flint River. VNA Br. 24, PageID.20597. The results **were all either low or non-detect**. *Id.* The highest blood lead level detected among the Plaintiffs was **1.3 µg/dL**. *Id.*⁵ Half of the blood lead

⁵ This corresponds with what Dr. Michaels identifies as the average blood lead level in young children in the United States between 2009 and 2015. Report 91.

tests were deemed **non-detect** using the finger-prick method, meaning that **the lead level was below the 3.3 µg/dL limit of detection.** *Id.*

Dr. Michaels attempts to sidestep these results. He stated that, had a state-of-the-art method been used rather than the less sensitive finger-prick method, there is a “possibility that some or all of the tabulated **non-detects** actually would have been reported as **detects**.” Report 12 (emphasis in original). Perhaps so, but that is pure speculation. Indeed, Dr. Michaels concedes that “there is no way of knowing.” Dep. 211:4-15. “The ‘knowledge’ requirement of Rule 702 requires ‘more than subjective belief or unsupported speculation.’” *Tamraz*, 620 F.3d at 670 (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 590 (1993)).

Plaintiffs assert that Dr. Michaels’s opinion that other methods of testing blood lead levels might have generated “different results” is based on scientific research, data, and peer-reviewed materials. Response 29, PageID.23841. But they do not identify any of that material—and besides, Dr. Michaels’s testimony is that “there is no way of knowing.” Dep. 211:4-15.

Plaintiffs argue that Dr. Michaels’s testimony about the most accurate methods of testing blood lead is relevant and will assist the jury to understand the effects of lead on humans and exposure levels in Flint. Response 27-29, PageID.23839-23841. A tutorial on the different methods of testing blood lead levels would not have “any tendency to make a fact more . . . probable than it would

be without the [tutorial]” and would not be “of consequence in determining the action,” Fed. R. Evid. 401, because, as Dr. Michaels concedes, he can only guess what any Plaintiff’s blood lead level would have been if tested by another method.

C. Dr. Michaels’s Opinions And Testimony Relating To Plaintiffs’ Bone Lead Scans Are Unreliable And Unhelpful

Dr. Michaels relies on Dr. Specht’s bone lead scans as support for his exposure opinion, stating that the bone lead scans demonstrate that Plaintiffs have experienced “persistent” lead exposure. Report 116-19. Dr. Michaels is not an expert in bone lead scans and thus is not qualified to testify about them.

In addition, VNA has moved to exclude Dr. Specht’s testimony as unreliable and unhelpful. As VNA explained, the pXRF bone lead scans themselves are unreliable and not helpful to Plaintiffs’ claims against VNA. VNA Br. 26-27, 31, PageID.20599-20600, 20604.⁶

For both of these reasons, Dr. Michaels’s testimony and opinions relating to his interpretation of the pXRF bone lead measurements should be excluded.

⁶ Plaintiffs do not respond to these arguments in their opposition, relying on their response to VNA’s motion to exclude Dr. Specht’s opinions. Response 29-30, PageID.23841-23842. VNA accordingly refers the Court to its reply brief in support of its motion to exclude Dr. Specht’s opinions.

1. Dr. Michaels Is Not Qualified To Testify About pXRF Bone Lead Scans

Dr. Michaels admits that he is not an expert in bone lead measurement. Dep. 177:24-178:4. Indeed, before this case, Dr. Michaels had never reviewed bone lead scan test reports or analyzed bone lead content. *Id.* at 80:6-10, 178:5-10.

Plaintiffs' response is that "Rule 702 does not require that Dr. Michaels be an expert in bone lead testing to form an opinion." Response 30, PageID.23842. For that proposition, they rely on the Sixth Circuit's decision in *Morales v. American Honda Motor Co.*, 151 F.3d 500 (6th Cir. 1998). In *Morales*, the court held that the district court did not abuse its discretion in allowing a certified expert in safety management (and member of various product safety organizations) to offer opinions involving accident reconstruction, engineering, and child psychology. *Id.* at 516. Contrary to Plaintiffs' contention, Response 30, PageID.23842, the Sixth Circuit did not hold that the district court "did not err in allowing plaintiffs' expert to testify on certain topics he had no background or expertise in." Instead, the court of appeals indicated only that, in view of the qualifications that the expert did have, whether the subjects on which he testified were within the scope of his qualifications could be left to the jury. *Morales*, 151 F.3d at 516. In contrast, here Dr. Michaels plainly lacks the needed expertise to testify about pXRF testing at all, and so the jury should not be allowed to consider his opinions about bone scans.

More generally, Plaintiffs' view is inconsistent with Sixth Circuit law, which explains that the expert must have the expertise necessary to support the testimony he offers in each case: "The issue with regard to expert testimony is not the qualifications of a witness in the abstract, but whether those qualifications provide a foundation for a witness to answer a specific question." *Berry v. City of Detroit*, 25 F.3d 1342, 1351 (6th Cir. 1994). The Sixth Circuit has admonished district courts against broadly construing expertise, explaining: "It is like declaring an attorney an expert in the 'law.' A divorce lawyer is no more qualified to opine on patent law questions than anyone else, and it is a mistake for a trial judge to declare anyone to be generically an expert." *Id.* at 1352. That is precisely the problem with Dr. Michaels's attempt to parrot Dr. Specht's opinions.

Subsequent cases confirm this understanding of *Morales* and Sixth Circuit law more generally. For example, in *Sigler v. American Honda Motor Co.*, 532 F.3d 469 (6th Cir. 2008), a product-liability case alleging liability for a defective airbag, the plaintiff's expert was a car mechanic who sought to testify about the speed at which the car struck a tree and the reason why the airbag failed to deploy. The Sixth Circuit affirmed the district court's holding that, while the expert "is clearly an expert mechanic, . . . his qualifications do not suggest he is an expert in physics, accident reconstruction, or airbag engineering." *Id.* at 479. The expert had relied on the assistance of an accident reconstruction expert, and the district court found that such

reliance “only underscored the impropriety of [the expert’s] evidence as an expert on issues pertaining to accident reconstruction and potential defects in the airbag.” *Id.* Similarly, the Sixth Circuit has held that a doctor’s opinion that was based only on the diagnosis of another doctor was unreliable, explaining that “[w]hen a doctor’s opinion ‘strays from’ the doctor’s ‘professional experience,’ the opinion is ‘less reliable, and more likely to be excluded under Rule 702.’” *Madej v. Maiden*, 951 F.3d 364, 376-77 (6th Cir.) (citations omitted), *cert. denied*, 141 S. Ct. 612 (2020); *see Burgett v. Troy-Bilt LLC*, 579 F. App’x 372, 377 (6th Cir. 2014) (in an opinion by the author of *Morales*, holding that the district court did not err in excluding a mechanical engineer’s opinions on biomechanical issues and human factors). These decisions all support the view that Dr. Michaels is not permitted to offer opinions about Plaintiffs’ bone lead measurements.

Because Dr. Michaels is not qualified to testify about bone lead testing, his opinion that the bone lead scans are evidence of “persistent exposure” should be excluded.

2. Dr. Michaels’s Interpretation Of Plaintiffs’ Bone Lead Measurements Is Unreliable And Unhelpful

a. There Are No Reliable Benchmarks For Elevated Bone Lead In Children

Dr. Michaels’s opinions that Plaintiffs’ pXRF measurements reveal persistent exposure are unreliable. Dr. Michaels uses reference ranges supplied by Dr. Specht

in an attempt to provide meaning to the bone lead scan results. Dep. 81:22-82:6. According to Dr. Specht, a result above 10 µg/g is equal to “persistent exposure” and a result above 20 µg/g is equal to “persistent intense exposure.” Ex. 28, Specht Dep. 432:1-12; Ex. 40, Suppl. Specht Dep. 434:5-9.

However, as VNA explained in its motion to exclude Dr. Specht’s testimony, no reliable benchmarks exist for determining elevated bone lead levels in children. Dr. Specht admits that his “reference values” relate to adults and “are not really reflective of anything in this regard since we’re looking at children.” Ex. 28, Specht Dep. 67:16-68:10, 432:1-12. And Dr. Specht concedes that he has not derived any reference values for “persistent” exposure or “persistent intense” exposure for children. *Id.* at 436:16-23.

Dr. Michaels has no independent knowledge of whether Dr. Specht’s reference ranges are accurate. Dep. 177:24-178:4, 231:24-232:9. He did not even review Dr. Specht’s deposition testimony. *Id.* at 82:8-10. And Dr. Specht himself conceded that there are no benchmarks for bone lead in children, and he did *not* opine that the bone lead levels showed “persistent” exposure. Br. in Supp. of VNA Mot. to Exclude Specht 30, ECF No. 343, PageID.21622. Dr. Michaels cannot rely on Dr. Specht’s opinions to conclude that Plaintiffs have been subject to “persistent” exposure—both because one expert cannot simply “parrot” the “findings of an expert in a different field,” 29 Charles Alan Wright & Arthur R. Miller, *Fed. Prac.*

& Proc. § 6274 (2d ed. 2020); *see Gould Elecs. Inc. v. Livingston Cnty. Rd. Comm’n*, No. 17-cv-11130, 2020 WL 6793335, at *9 (E.D. Mich. Nov. 19, 2020), and because Dr. Specht did not actually find a “persistent” exposure.

b. Dr. Michaels’s Application Of Dr. Specht’s Reference Values To Plaintiffs Is Unreliable And Unhelpful

Even if Dr. Specht’s “reference values” were reliable benchmarks for bone lead scans in children, the conclusion that Dr. Michaels’s draws from them—that Plaintiffs suffered persistent exposure—is neither reliable nor helpful. According to the pXRF scans, which were conducted in 2019 and 2020, none of the Plaintiffs had bone lead levels above the 10 µg/g level for “persistent exposure,” let alone the 20 µg/g level for “persistent intense exposure.” Report 116-19. Nonetheless, Dr. Michaels opines that Plaintiffs’ bone lead levels reflect “‘persistent’ exposure in the past.” *Id.* He speculates that Plaintiffs’ bone lead levels previously had been higher but declined in the years since Flint switched back to Detroit water. Dep. 81:2-21.

Dr. Michaels has no reliable basis for concluding that Plaintiffs’ bone lead measurements would have been higher during the period when the City was using water from the Flint River. Plaintiffs provide no citations or support for this opinion. And Dr. Michaels’s speculation is contrary to Dr. Specht’s testimony that bone lead measurements represent the amount of lead in the subject’s bones that had accumulated over the person’s lifetime up until the date on which the scan was done. Ex. 28, Specht Dep. 207:19-208:5, 228:14-21. Dr. Specht never suggested that a

bone lead measurement taken on a particular day would indicate that the subject would have had a higher measurement in the past, which is the essence of Dr. Michaels's speculative and results-oriented opinion.

In addition to being unreliable, Dr. Michaels's opinion that Plaintiffs' bone lead measurements are indicative of persistent exposure would not be helpful to the jury. Plaintiffs do not disagree that bone lead testing is a tool for measuring cumulative exposures—*i.e.*, exposures over the course of the Plaintiffs' entire lifetimes, up to the day they underwent testing. And Dr. Michaels himself acknowledges that lead is ubiquitous and that all people have lead in their bodies. Dep. 70:16-20, 142:7-143:7, 153:7-9; 185:22-186:1, 187:7-13, 192:12-15. Bone lead measurements may therefore be of use in determining whether the subject needs treatment, but they are not useful in determining whether the water crisis in general and VNA in particular caused Plaintiffs any harm.

II. Dr. Michaels's Opinion That Any Lead Exposure Is Harmful Should Be Excluded Because It Is Unreliable And Would Not Be Helpful To The Trier Of Fact

A. Courts Regularly Exclude As Unreliable Expert Testimony That Ignores The Relationship Between Dose And Toxicity

Dr. Michaels opines that, because “no safe blood [lead] level is known,” “[a]ll incremental [lead] exposure must be de[e]med adverse.” Report 2. Dr. Michaels also opines that the “lowest causative [lead] exposure is one molecule.” *Id.* at 103. In his view, *any* lead exposure can and will cause injury.

That view is rejected by controlling Michigan case law, which makes clear that to establish causation for a toxic tort, a plaintiff must introduce “not simply proof of exposure to the substance, but proof of *enough* exposure to cause the plaintiff’s specific illness.” *Lowery v. Enbridge Energy Ltd. P’ship*, 500 Mich. 1034, 1043 (2017) (Markman, J., concurring) (quoting *McClain v. Metabolife Int’l, Inc.*, 401 F.3d 1233, 1242 (11th Cir. 2005)) (emphasis added); see *Powell-Murphy*, 333 Mich. App. at 248-53 (adopting the causation framework described in Justice Markman’s *Lowery* concurrence). Because “a substance may cause different harmful effects in different doses,” “a substance may be harmful at a certain level of exposure but may not be sufficient to cause a particular adverse health effect.” *Lowery*, 500 Mich. at 1044 (Markman, J., concurring).⁷

⁷ Michigan is not alone in requiring proof of sufficient exposure to cause a plaintiff’s illness. *Pluck v. BP Oil Pipeline Co.*, 640 F.3d 671 (6th Cir. 2011), cited in VNA’s opening brief, arose under Ohio law. In that case, the Sixth Circuit stated that “it is well-settled that the mere existence of a toxin in the environment is insufficient to establish causation without proof that the level of exposure could cause the plaintiff’s symptoms.” *Id.* at 679. In *Pluck*, the expert relied upon a “no safe dose” theory rather than showing that the plaintiff had been exposed to a sufficient amount of benzene to cause the claimed injury. *Id.* at 675. The court explained that the expert could not establish causation because he did not “ascertain [the plaintiff’s] level of benzene exposure” or “determine whether she was exposed to quantities of benzene exceeding the EPA’s safety regulations.” *Id.* at 679. The court also noted that the “no safe dose” theory has been “discredited by other courts.” *Id.* at 675; see VNA Br. 35-36, PageID.20608-20609 (collecting cases).

In their opposition to summary judgment, Plaintiffs admit that they are required to show “that they were exposed to the toxic substance and that the level of exposure was sufficient to induce the complained-of medical condition.” Pls. Opp. to VNA Mot. for Summ. J. 103-04, ECF No. 374, PageID.25238-25239. Yet in their response to VNA’s motion to exclude Dr. Michaels’s opinions, Plaintiffs do not acknowledge, let alone explain how they meet, this requirement.

The cases Plaintiffs cite either do not apply to or do not support their arguments. *Clausen v. M/V New Carissa*, 339 F.3d 1049 (9th Cir. 2003), was brought under the Federal Oil Pollution Act and the Oregon Oil Spill Act—not Michigan law. Further, the issue was not the standard for general causation, but whether the expert’s differential diagnosis was sufficient. *Id.* at 1059-60. *Hardyman v. Norfolk & Western Railway Co.*, 243 F.3d 255 (6th Cir. 2001), was a case under the Federal Employers’ Liability Act (FELA), which the Sixth Circuit described as “a remedial and humanitarian statute . . . intended [] to be a departure from common law principles of liability.” *Id.* at 258. Again, the court did not analyze Michigan law. *Sunnycalb v. CSX Transportation, Inc.*, 926 F. Supp. 2d 988 (S.D. Ohio 2013), also involved a claim under FELA and is an opinion from a district court, not the Sixth Circuit (as Plaintiffs state). Further, unlike this case, *Sunnycalb* involved “sudden exposure from a single source resulting in immediate symptoms in an otherwise healthy person.” *Id.* at 993.

Plaintiffs also cite *Westberry v. Gislaved Gummi AB*, 178 F.3d 257 (4th Cir. 1999), but that case is consistent with VNA's position. In *Westberry*, which arose under South Carolina law, the court noted that testimony concerning the level of airborne talc was adequate to permit a factfinder to conclude that the plaintiff was exposed to high concentrations of airborne talc, and there was no dispute that exposure to high concentrations of airborne talc could cause irritation to mucous membranes. *Id.* at 264. That foundation—both testimony about the air being thick with talc and evidence that high concentrations of talc are harmful—is missing from Dr. Michaels's categorical opinion that any exposure to lead is harmful.

B. Dr. Michaels's Opinion That Any Exposure Is Sufficient To Cause Injury Is Unreliable

1. The CDC And ATSDR Publications Do Not Establish That Every Exposure To Lead Is Harmful

Dr. Michaels's opinion that every exposure to lead is harmful is unreliable for several reasons. Neither Dr. Michaels nor Plaintiffs demonstrate that his theory has “been tested,” that it has “been subjected to peer review and publication,” or that it “enjoys general acceptance in a relevant scientific community.” *Nelson*, 243 F.3d at 251 n.5. Indeed, Dr. Michaels's theory is contradicted by their other expert, Dr. Graziano. Dr. Graziano conceded that not every exposure to lead is harmful. Ex. 29, Graziano Dep. 231:21-232:7. In addition, courts have rejected expert testimony that every exposure causes harm when science has yet to identify a safe level of

exposure. VNA Br. 38, PageID.20611 (collecting cases). Plaintiffs fail to respond to any of these points.

Plaintiffs also concede that the CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) do not say that lead has been proven to be unsafe at any level, and that Dr. Michaels does not disagree. Response 35 n.2, PageID.23847. Accordingly, Plaintiffs cannot point to the CDC and ATSDR as supporting Dr. Michaels's assertion that any level of exposure can cause harm.

Likewise, Plaintiffs offer no response to VNA's argument that regulatory risk assessments are not appropriate standards for determining legal causation. VNA Br. 38-40, PageID.20611-20613 (collecting cases). In any event, Dr. Michaels takes the extreme position that every exposure causes harm, irrespective of a regulatory standard (such as the CDC's 5 µg/dL reference level for blood lead). Neither Dr. Michaels nor Plaintiffs identify any reliable scientific support for that opinion.

2. Dr. Michaels Misconstrues The Reduction In The CDC's Reference Values For Lead

Dr. Michaels's opinion that there may be no safe level of lead rests on a misunderstanding of one of his key sources. *See* VNA Br. 40-42, PageID.20613-20615. He relies on an ATSDR document that indicates that the blood lead level that the CDC has considered "elevated" has declined over time. He assumes—incorrectly—that these changes mean that the CDC has changed what it considers to be the safe level of lead over time. In fact, the downward trend in "elevated" blood

lead simply reflects the decline in blood levels observed in the U.S. population because of the prohibitions against leaded gasoline and lead paint, among other things. *Id.* The CDC’s current reference value of 5 µg/dL indicates that 97.5% of the U.S. population has a lower blood-lead level—as do Plaintiffs. *Id.*

Plaintiffs offer no response. Dr. Michaels’s statement that a threshold for adverse lead effects “might not” exist thus has no support.

3. Dr. Michaels Concedes That His “No Safe Level” Theory Is Untestable

VNA explained that one problem with Dr. Michaels’s “no safe level” theory is that it is not testable. VNA Br. 42-43, PageID.20615-20616. Dr. Michaels himself admits as much. As he explains, “a single molecular ‘hit’ typically is far below any observable experimental exposure dose,” meaning that the risk from such exposure “must be visualized (and quantified) via extrapolation from observable exposure doses to the ‘twilight zone’ of unobservable exposures.” Report 103. Plaintiffs have no response to this critical flaw in Dr. Michaels’s opinion.

C. Dr. Michaels’s “No Safe Level” And “Every Exposure” Opinions Cannot Help The Trier Of Fact Determine Causation

VNA explained that Dr. Michaels’s “no safe level” opinions are unhelpful because they cannot assist the trier of fact in determining causation. Plaintiffs do not dispute that. Plaintiffs likewise fail to respond to VNA’s argument—supported by ample case law—that they are not permitted to rely on Dr. Michaels’s “no safe

level” theory because that would relieve them of their burden to prove that an alleged exposure attributable to VNA caused their injuries. VNA Br. 45-46, PageID.20618-20619 (collecting cases). Instead, Plaintiffs assert simply that Dr. Michaels’s opinions would be helpful as background, to help the jury “understand[] the nature of lead and its effects on human health.” Response 36-37, PageID.23848-23849.

Plaintiffs’ attempt to skirt Michigan law should be rejected. Plaintiffs have the burden of proving that they were “exposed to levels of [the substance] that are known to cause the kind of harm [they] claim[] to have suffered.” *Lowery*, 500 Mich. at 1051 (Markman, J., concurring) (quoting *Wright v. Willamette Indus., Inc.*, 91 F.3d 1105, 1107 (8th Cir. 1996)). Dr. Michaels’s “no safe level” opinion cannot help Plaintiffs accomplish that task, because it sidesteps the critical issue of exposure levels. As Justice Markman explained in *Lowery*, “[g]eneral causation pertains to whether a toxin is capable of causing the harm alleged. A necessary predicate to this inquiry is identifying the asserted exposure level of the toxin.” *Id.* Dr. Michaels’s “no safe level” opinion disregards exposure levels entirely and does not establish that lead is capable of causing harm at any particular exposure level.

Plaintiffs’ effort to characterize Dr. Michaels’s “no safe level” opinions as background for the jury also should be rejected under Rule 403. The admission of these opinions would allow the jury to award damages based on the erroneous belief that exposure to a single molecule of lead actually can cause Plaintiffs’ claimed

health effects. Plaintiffs admit that lead has not been proven to be unsafe at some small levels. Response 35 n.2, PageID.23847. They should not be allowed to introduce evidence that may lead a lay jury to find the opposite. *See United States v. Schrock*, 855 F.2d 327, 335 (6th Cir. 1988) (stating that evidence is unfairly prejudicial, and may be excluded under Rule 403, when it “invites the jury to decide the case on an improper basis”).

III. Dr. Michaels Lacks A Scientific Basis To Conclude That Exposure To Lead Is Capable Of Causing Plaintiffs’ Claimed Health Problems

The parties agree that Dr. Michaels does not offer opinions on specific causation, that is, whether Plaintiffs’ exposure to lead from drinking water caused their claimed injuries. VNA Br. 50, PageID.20623; Response 2, PageID.23814. On general causation, Dr. Michaels opines that lead exposure “has the potential to cause and/or exacerbate, or contribute to causing and/or exacerbating, adverse health effects in effect categories documented in [Plaintiffs’ histories].” Report 123-25. He states that his general-causation opinion applies “most notably” to “neurological effects” (E.S.) and to “cognitive, behavioral, and other neurological effects” (A.T., R.V., and D.W.). *Id.* Dr. Michaels’s general-causation opinion should be excluded because he lacks a scientific basis to conclude that blood lead at low and non-detectable levels, like those recorded for each Plaintiff, can cause Plaintiffs’ claimed health effects.

Plaintiffs contend that Dr. Michaels cites a “magnitude” of studies and data to support his general-causation opinion. Response 38, PageID.23850. They point to 15 pages of citations at the end of Dr. Michaels’s report, but they do not say which of those authorities support his opinion that lead is capable of causing health effects at low and non-detectable levels, like those of Plaintiffs. *Id.* The Sixth Circuit has held that blanket reference to a list of citations is not sufficient to provide a basis for a causation opinion. *See Nelson*, 243 F.3d at 254 (“Although plaintiffs repeatedly state that Hirsch referred to a list of 120 scientific articles, they fail to identify any specific literature that supports his conclusion with respect to causation.”).

In its opening brief, VNA cited many cases, including cases from the Sixth Circuit, holding that an “association” or “suggestive” link between a toxin and an adverse health outcome is not sufficient to prove general causation as a matter of law. VNA Br. 50-52, PageID.20623-20625 (collecting cases). In response, Plaintiffs cite only a single unreported opinion by a magistrate judge from the Eastern District of Tennessee issued in 2018—*Adkisson v. Jacobs Eng’g Grp., Inc.*, No. 13-cv-505, 2018 WL 3460244 (E.D. Tenn. July 18, 2018).

The magistrate judge’s opinion does not help Plaintiffs. In 2020, the Michigan Court of Appeals held that, under Michigan law, plaintiffs must introduce evidence of both the amount of their exposure to the allegedly harmful substance and the level at which that substance causes health effects. *Powell-Murphy*, 333 Mich. App. at

252. That decision—not a federal court’s decision in a case governed by Tennessee law—is controlling here.⁸

Plaintiffs cannot satisfy *Powell-Murphy*’s requirements, because Dr. Michaels lacks a reliable scientific basis for his conclusion that exposure to lead is capable of causing Plaintiffs’ claimed injuries at the low and non-detectable levels recorded in Plaintiffs. Dr. Michaels cites an ATSDR document for his assertion that “blood [lead] levels below 5 µg/dL have been reported to impair cognition.” Report 50, 56, 60, 66. The cited document states that “[e]vidence continues to accrue that commonly encountered blood lead concentrations, even those below 5 µg/dL (50 ppb), impair cognition.” Ex. 33, ATSDR, *Case Studies In Environmental Medicine (CSEM) Lead Toxicity* 22 (June 12, 2017), ECF No. 342-34, PageID.21360.

This citation does not support Dr. Michaels’s opinion. First, the ATSDR states that such evidence is accruing, not that there has been a scientific conclusion. As the Sixth Circuit has stated, “what science treats as a useful but untested

⁸ In a later opinion in the same case, the court agreed with the judicial consensus that not every exposure to a substance is capable of causing harm, explaining that, “as a matter of basic science, ‘the dose makes the poison.’ Thus, there are safe exposures levels of many substances normally considered ‘dangerous,’ and conversely, dangerous exposure levels to many substances normally considered ‘safe.’ Therefore, to say that a chemical agent is capable of causing a disease—i.e., that plaintiffs’ burden on general causation is satisfied—without some reference to a particular dose, would be incoherent.” *Adkisson v. Jacobs Eng’g Grp., Inc.*, 342 F. Supp. 3d 791, 799-800 (E.D. Tenn. 2018) (citation omitted).

hypothesis the law should generally treat as inadmissible speculation.” *Tamraz*, 620 F.3d at 677. Second, all of the Plaintiffs’ blood lead levels are well below 5 µg/dL, with the highest detected level being 1.3 µg/dL. VNA Br. 24, PageID.20597. What has been reported at blood lead levels that are some unspecified amount below 5 µg/dL is not relevant to the blood lead levels exhibited by Plaintiffs.

Finally, as VNA pointed out, Dr. Michaels cites no scientific basis for his opinion that exposure to lead is capable of causing hair or skin problems at any level. VNA Br. 54 n.8, PageID.20627. Dr. Michaels states in his report that “ATSDR (2019) found no epidemiology studies of adverse dermal effects associated with chronic exposure to [lead].” Report 85. Because Plaintiffs make no attempt to resuscitate Dr. Michaels’s general-causation opinion with respect to hair and skin problems, it should be excluded.

IV. Dr. Michaels’s Testimony About Alleged Effects Of Lead Exposure That Are Unrelated To Plaintiffs’ Claimed Health Problems Should Be Excluded

Dr. Michaels should be precluded from testifying about the alleged effects of lead exposure that are unrelated to Plaintiffs’ claims of cognitive, behavioral, and neurological problems. Plaintiffs say that Dr. Michaels discusses potential health effects of lead to show the various injuries that lead is known to cause. Response 42, PageID.23854. But testimony about whether exposure to lead is capable of causing health effects not claimed by Plaintiffs will not “help the trier of fact to

understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702(a). As the Supreme Court recognized in *Daubert*, “[e]xpert testimony [that] does not relate to any issue in the case is not relevant and, ergo, non-helpful.” 509 U.S. at 591.

“Whether an opinion ‘relates to an issue in the case’ or helps a jury answer a ‘specific question’ depends on the claims before the court. Thus, when analyzing the relevancy of expert testimony, a court should consider the elements that a plaintiff must prove.” *Madej*, 951 F.3d at 370. Because Plaintiffs do not need to prove anything about conditions that they do not have in order to prove their claims, Dr. Michaels’s opinions about such conditions necessarily are unhelpful.

Dr. Michaels’s opinions about health effects not claimed by Plaintiffs also are inadmissible. Those opinions are irrelevant because they would not have “any tendency” to make a fact that is “of consequence in determining the action” “more probable,” and therefore are not admissible. Fed. R. Evid. 401, 402.

Plaintiffs state that “Dr. Michaels’s testimony is intended to educate the trier of fact on the toxic properties of lead and its effects on human health,” which in turn “will assist the trier of fact to understand why the switch to Flint River water as a primary water source and failure to properly treat the water was negligent.” Response 41, PageID.23853. But evidence that lead can cause the conditions that Plaintiffs actually do claim to have is sufficient for this purpose. Evidence about

conditions that Plaintiffs indisputably do not have would have no “tendency to make” a finding of negligence “more probable.”

Moreover, even if Dr. Michaels’s opinions about conditions from which Plaintiffs do not suffer were relevant, their probative value would be substantially exceeded by the danger of unfair prejudice and confusion under Rule 403. Dr. Michaels’s wide-ranging opinions about other potential health effects of lead would risk significant prejudice and confusion by making Plaintiffs even more sympathetic than they already are and allowing them to cast the Defendants as indifferent to the risk of harm far beyond anything that they personally suffered.

The cases cited by Plaintiffs do not support allowing them to prejudice the jury in this way, because the expert testimony in those cases was highly probative, not minimally relevant. *See United States v. LaVictor*, 848 F.3d 428, 444 (6th Cir. 2017) (observing that challenged expert testimony was “highly probative”); *United States v. Bonds*, 12 F.3d 540, 567 (6th Cir. 1993) (“Here, the evidence and the testimony were clearly probative because they linked [defendant] to the murder scene when no direct evidence existed to do so.”). In contrast, Dr. Michaels’s opinions about health effects not claimed by Plaintiffs have the most attenuated probative value—if any at all.

CONCLUSION

The Court should exclude the testimony and report of Robert A. Michaels, Ph.D., CEP.

Respectfully submitted,

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Dated: September 15, 2021

CERTIFICATE OF SERVICE

I hereby certify that on September 15, 2021, I electronically filed the foregoing document with the Clerk of the Court using the ECF System, which will send notification to the ECF counsel of record.

Respectfully submitted,

/s/ James M. Campbell

Dated: September 15, 2021